

Annotated Bibliography on Misoprostol for Treatment of Incomplete Abortion and Miscarriage

1. Bagratee JS, Khullar V, Regan L, Moodley J, Kagoro H. **A randomized controlled trial comparing medical and expectant management of first trimester miscarriage.** Human Reproduction 2004; 19(2): 266-271.

104 women with pregnancy failures were randomized to receive either 600 mcg misoprostol or placebo vaginally. Repeat doses were offered if evacuation was not complete the following day. At Day 7, women who had not experienced complete evacuation of uterine contents were given a surgical evacuation. The overall success rate in the misoprostol arm was 88.5% compared with 44.2% in the placebo arm. There was no significant difference in success rates between the two arms among women experiencing an incomplete abortion (100% vs 85.7%). However, women experiencing a missed abortion had a much higher success rate with misoprostol (87%) as compared to placebo (29%).

2. Blanchard K, Taneepanichskul S, Kiriwat O, Sirimai K, Svirirojana N, Mavimbela N, Winikoff B. **Two regimens of misoprostol for treatment of incomplete abortion.** Obstetrics and Gynecology 2004; 103: 860-865.

This randomized trial enrolled 169 women with diagnosed incomplete abortion. Women received either a single or repeated dose of 600 mcg of misoprostol taken orally. Follow-up was conducted two weeks following misoprostol administration. 66% of women in the single dose arm and 70% of women in the repeat dose arm experienced complete expulsion without the need for surgical intervention.

3. Chung TK, Cheung LP, Leung TY, Haines CJ, Chang AM. **Misoprostol in the management of spontaneous abortion.** British Journal of Obstetrics and Gynaecology 1995 Oct; 102(10):832-5.

This prospective, observational study enrolled 252 women with diagnosed incomplete abortion. All women were first treated with expectant management. Two weeks after the initial diagnosis, women who were found to still have significant retained POCs were given 400 mcg oral misoprostol every 4 hours for a total of 3 doses. They were reassessed the following morning for complete evacuation. 141 women had retained products at the two week follow-up and were treated with misoprostol. Of those women, 88 (62%) did not require surgical intervention.

4. Chung TK, Lee DT, Cheung LP, Haines CJ, Chang AM. **Spontaneous abortion: a randomized, controlled trial comparing surgical evacuation with conservative management using misoprostol.** Fertility and Sterility 1999 Jun; 71(6):1054-9.

635 women were enrolled in this randomized trial comparing the efficacy of misoprostol for treatment of incomplete abortion to that of surgical evacuation. Women in the misoprostol arm received 400 mcg of oral misoprostol every 4 hours up to a total dose of 1200 mcg. Evaluation of success was made the following morning. Of the 321 women who received misoprostol, 159 (50%) expelled the products of conception and did not require surgical intervention.

5. Creinin MD, Moyer R, Guido R. **Misoprostol for medical evacuation of early pregnancy failure.** Obstetrics and Gynecology 1997; 89: 768-772.

Twenty women were randomized to receive 400 mcg oral misoprostol or 800 mcg vaginal misoprostol for treatment of early pregnancy failure. The dose was repeated in 24 hours if a gestational sac was still present. After an additional 24 hours, women failing to expel the products of conception were given a surgical evacuation. 12 women received oral misoprostol and 8 women received vaginal misoprostol. Successful expulsion occurred in 3 of 12 women (25%) in the oral group and 7 of 8 women (88%) in the vaginal group.

6. Demetroulis C, Saridogan E, Kunde D, Naftalin AA. **A prospective randomized control trial comparing medical and surgical treatment for early pregnancy failure.** Human Reproduction 2001 Feb; 16(2):365-9.

This prospective study randomized 80 patients to surgical evacuation or medical management with 800 mcg of vaginal misoprostol for early pregnancy failure. This study included women with both incomplete and missed abortions. Follow-up was conducted 10 days following treatment administration. The failure rate in the misoprostol group was 7% among women with incomplete abortion 23% among women with missed abortion. None of the patients assigned to the surgical arm required repeat evacuation. All patients with successful treatments in the misoprostol group expressed satisfaction with the treatment as compared to only 58% of women in the surgical group.

7. Gronlund L, Gronlund AL, Clevin L, Anderson B, Palmgren N, Lidegaard A. **Spontaneous Abortion: Expectant Management, Medical treatment or surgical evacuation.** Acta Obstet Gynecol Scand 2002; Aug 81 (8) 781-2.

This study compared treatment of spontaneous abortion by expectant management, 400 mcg vaginal misoprostol, and surgical evacuation. 78 women were enrolled. After treatment, women were reevaluated at days 8 and 14. Successful evacuation of the uterus was achieved in 14/17 (82%) women in the expectant management group, in 28/31 (90%) of women treated with misoprostol and in 29/30 (97%) of women receiving surgical evacuation.

8. Henshaw RC, Cooper K, El-Refaey H, Smith NC, Templeton AA. **Medical management of miscarriage: non-surgical uterine evacuation of incomplete and inevitable spontaneous abortion.** British Medical Journal 1993; 306: 894-5.

This open study evaluated the outcome of 44 women treated with sulprostone or 400 mcg oral misoprostol for incomplete or inevitable abortion. The authors combined the data from the two groups due to a lack of differences in the outcomes in the two groups. Treatment failed in 2 of the 43 evaluated patients with the remaining 41 women achieving complete uterine evacuation after 12-18 hours.

9. Herabutya Y, O-Prasertsawat P. **Misoprostol in the management of missed abortion.** International Journal of Gynecology and Obstetrics 1997; 56: 263-6.

This study compared the efficacy of vaginal misoprostol (200 mcg) compared to placebo for use prior to dilatation and curettage for treatment of missed abortion. 84 women were randomized to receive the treatment one day prior to scheduled surgery. 83.3% of the women in the misoprostol group spontaneously expelled the POCs prior to the surgery. This was significantly higher than the 17.14% who expelled in the placebo group.

10. de Jonge ET, Makin JD, Manefeldt E, De Wet GH, Pattinson RC. **Randomised clinical trial of medical evacuation and surgical curettage for incomplete miscarriage.** British Medical Journal 1995 Sep 9; 311(7006):662.

This trial enrolled 50 women who presented with incomplete miscarriage. Women were randomized to either medical management consisting of a single dose of 400 mcg oral misoprostol or surgical curettage. The outcome was assessed 12 hours after misoprostol administration. After 12 hours, only 3 (13%) of the women in the misoprostol group had achieved complete evacuation of the uterus.

11. Muffley PE, Stitely ML, Gherman RB. **Early intrauterine pregnancy failure: a randomized trial of medical versus surgical treatment.** American Journal of Obstetrics and Gynecology 2002 Aug;187(2):321-5; discussion 325-6.

50 women were randomized to either surgical or medical treatment of early pregnancy failure. The medical regimen consisted of 800 mcg vaginal misoprostol which could be repeated at 24 and 48 hours if significant POCs remained in the uterus. The outcome was measured 72 hours after misoprostol administration. 15 women in the medical group (60%) had successful uterine evacuation and did not require curettage.

12. Ngai SW, Chan YM, Tang OS, Ho PC. **Vaginal misoprostol as medical treatment for first trimester spontaneous miscarriage.** Human Reproduction 2001 Jul;16(7):1493-6.

This randomized trial enrolled 60 women with pregnancy failure. Women in the medical arm received 400 mcg of vaginal misoprostol on days 1, 3, and 5. The control group was treated with expectant management only. Final outcome was assessed on day 15. 83% of women in the misoprostol group avoided surgical evacuation as compared to 48% in the control group.

13. Ngoc NTN, Blum J, Durocher J, Quan TTV, Winikoff B. **Medical management of incomplete abortion using 600 versus 1200 mcg of misoprostol.** In submission.

This randomized trial enrolled 300 women presenting with a diagnosed incomplete abortion. Women received either a single (600 ug) or repeated (600 ug X 2) oral dose of misoprostol. Final assessment of success was made at Day 10. There were no significant differences in the success rate in the two treatment arms. Misoprostol effectively evacuated the uterus for nearly all women (94.6%).

14. Ngoc NTN, Blum J, Westheimer E, Quan TTV, Winikoff B. **Medical termination of missed abortion using misoprostol in Vietnam.** International Journal of Gynecology and Obstetrics 2004 Nov; 87 (2): 138-42.

200 women with a confirmed missed abortion were randomized to receive 800 mcg misoprostol either orally or vaginally. All women returned for follow-up care two days later. Efficacy was high in both groups and not statistically significantly different (oral=89.0%, vaginal=92.9%).

15. Pandian Z, Ashok P, Templeton A. **The treatment of incomplete miscarriage with oral misoprostol.** British Journal of Obstetrics and Gynecology 2001 Feb;108(2):213-4.

This is a retrospective study of 112 women who received medical management of incomplete miscarriage. The regimen consisted of 600 mcg oral misoprostol followed by two 400 mcg doses every two hours. Complete uterine evacuation was achieved in 95 (85%) of the women, with a small number of women receiving a repeated misoprostol regimen.

16. Pang MW, Lee TS, Chung TK. **Incomplete miscarriage: a randomized controlled trial comparing oral with vaginal misoprostol for medical evacuation.** Human Reproduction 2001 Nov;16(11): 2283-7.

201 women were randomized to oral or vaginal misoprostol for treatment of incomplete miscarriage. 800 mcg of misoprostol was given either orally or vaginally and repeated 4 hours later if products of conception had not been passed. Final outcome was assessed the following day. The success rate was similar in both groups: 61.1% in the vaginal group and 64.4% in the oral group. The incidence of diarrhea was slightly elevated in the oral group.

17. Tang OS, Lau WN, Ng EH, Lee SW, Ho PC. **A prospective randomized study to compare the use of repeated doses of vaginal and sublingual misoprostol in the management of first trimester silent miscarriages.** Human Reproduction 2003; 18: 176-181.

This randomized controlled trial of vaginal versus sublingual misoprostol (600 mcg) enrolled 80 women with silent miscarriage. The dose was repeated every three hours for a maximum of three doses. The success rate in both groups was 87.5%. Final determination of success was obtained at days 7 and 43.

18. Weeks A, Alia G, Blum J, Ekwaru P, Durocher J, Winikoff B, Mirembe F. **A randomised trial of oral misoprostol versus manual vacuum aspiration for the treatment of incomplete abortion in Kampala, Uganda.** In Submission.

330 women with a clinically diagnosed incomplete abortion were randomized to receive either manual vacuum aspiration or 600 mcg misoprostol orally to complete their abortion. Follow-up was conducted on Day 14. Misoprostol successfully completed the abortion in 96.3% of the evaluable cases. However, it is important to note that nearly 30% of women in both arms were lost to follow-up.

19. Wood SL, Brain PH. **Medical management of missed abortion: a randomized clinical trial.** Obstetrics and Gynecology 2002; 99: 563-566.

50 women with missed abortion were randomized to receive up to two 800 mcg doses of vaginal misoprostol or placebo. Outcome was assessed one week after misoprostol administration. 80% of women in the misoprostol group and 16% of women in the placebo group had successful expulsion of the pregnancy products and did not require surgical intervention.